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Summary Report of Hanford Site Well Remediation and Decommissioning Activities for Fiscal Year 1995

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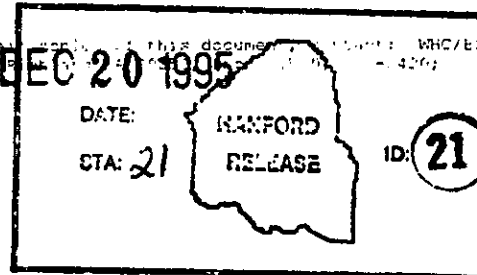
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Abstract: This document summarizes well remediation and decommissioning activities completed by Westinghouse Hanford Company on the Hanford Site for the period October 1, 1994 through September 30, 1995. The report also is intended to provide a background on past activities and status of current efforts.

This report was prepared by M. G. Gardner, A. L. Schatz and staff of the Well Services Support Group, Westinghouse Hanford Company.

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EXECUTIVE SUMMARY

The remediation and decommissioning of wells is a part of the overall maintenance of the groundwater and vadose zone monitoring and waste characterization programs conducted on the Hanford Site. These activities are conducted in response to regulatory drivers and in some cases to facilitate programatic or project specific goals.

Remediation and decommissioning of Hanford Site wells continues to be an integral part of *Resource Conservation and Recovery Act of 1976* (RCRA) groundwater monitoring programs at the Hanford site. A well remediation and decommissioning program was funded and implemented in fiscal year (FY) 1993 under the RCRA and Operational Monitoring (ROM) Program and has continued through FY 1995. The program is projected to continue over the next several years with increased emphasis from regulatory agencies, although funding for identified work scope remains uncertain.

Well remediation and decommissioning is also conducted under Environmental Restoration (ER) programs managed by the Hanford site Environmental Restoration Contractor (ERC) and under various programs by Pacific Northwest National Laboratory (PNNL). The well decommissioning and remediation performed by these contractors is identified to meet specific project needs and not as separate and distinct programs.

During FY 1995, 70 wells were decommissioned for the ROM Program. The program focused on wells for which no use or custodian could be identified. In addition, several wells were included in the program after being identified as hazards to personnel safety. A total of 77 wells were decommissioned under ER programs and 21 wells were remediated for a CCl₄ vapor extraction project.

As Hanford Site restoration and remediation efforts increase in scope, emphasis on well decommissioning will continue to grow. The ROM Program is aggressively seeking out-year funding increases to enhance the existing well remediation /decommissioning program in a continuing effort to fulfill the needs of the various environmental cleanup and groundwater/vadose monitoring programs. Wells that do not meet regulatory requirements for preservation will continue to be identified and remediated or decommissioned accordingly.

Well remediation/decommissioning efforts continue to meet with success. Considerable up-front planning is required which include record searches, field inspections and communication/coordination with well users. The following is a tabulation of FY 1995 accomplishments:

- Completed preliminary fitness-for-intended-use evaluations for 150 wells in the 600 Area and for 21 wells in the 200 West Area, consisting of as-built and construction summaries and field observations.
- Completed 516 field inspections for vadose and groundwater wells.
- Approved fitness-for-intended-use evaluation recommendations for 82 wells.

- Completed integrity inspections for 51 groundwater monitoring wells.
- Completed remediation of 21 wells for the 200 West Area Carbon Tetrachloride Vapor Extraction program.
- Completed decommissioning of 154 wells, characterization borings/probes, vadose monitoring wells and test array borings.
- Issued closeout report for the Fitzner/Eberhart Arid Land Ecology Reserve (ALE) and the Wahluke Slope (North Slope) area well decommissioning in October 1994.

ACKNOWLEDGEMENTS

This report was supported by the Westinghouse Hanford Company RCRA Operational Monitoring Program, Office of Waste Management. The Hanford Site well status data were obtained from the Hanford Wells Database System maintained by the Well Services Group of the Hanford Technical Services, Westinghouse Hanford Company.

The authors wish to thank the numerous technical and administrative staff who have contributed to this work from Pacific Northwest National Laboratory, Westinghouse Hanford Company, and Environmental Restoration Contractor.

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TERMS

ACOE	U.S. Army Corps of Engineers
ALE	Fitzner/Eberhart Arid Land Ecology Reserve
BHI	Bechtel Hanford Inc.
CERCLA	<i>Comprehensive Environmental Response, Compensation, and Liability Act of 1980</i>
DOE	U.S. Department of Energy
Ecology	Washington State Department of Ecology
EII	Environmental Investigations Instructions
ER	Environmental Restoration
ERC	Environmental Restoration Contractor
FFTF	Fast Flux Test Facility
FY	fiscal year
HWDS	Hanford Well Database System
NS	North Slope (Wahluke Slope)
PNNL	Pacific Northwest National Laboratory
RCRA	<i>Resource Conservation and Recovery Act of 1976</i>
RCW	<i>Revised Code of Washington</i>
ROM	RCRA and Operational Monitoring
STWD	Sitewide Groundwater Monitoring Program
WHC	Westinghouse Hanford Company
WPPSS	Washington Public Power Supply System

1.0 INTRODUCTION

Maintenance, rehabilitation, remediation, and decommissioning of Hanford Site wells will be required through final closure of the site, with well decommissioning being the last field activity performed. The Well Services Group of Westinghouse Hanford Company (WHC) is chartered to carry out and complete those activities for the ROM program and provides those services to other Hanford Site contractors. Each site contractor in turn identifies its programs requirements and either carries out those activities or subcontracts them.

The construction of approximately 4,686 wells on the Hanford site have been documented. These wells have been drilled by many different entities for varying purposes during the last 100 years. Of those wells, 3,302 are known to exist at the end of this reporting period with 2,417 documented as "in- use" for ground water quality sampling, water level monitoring, detection screening, or water supply wells. Many of these wells are used by multiple organizations and contractors. A total of 1,245 wells have been identified as having been abandoned or decommissioned. During FY 1995, 154 wells were decommissioned by Hanford Site contractors. Chart 1 depicts the distribution of wells decommissioned by the different contractors. Chart 2 shows the number of wells decommissioned for different Hanford Site programs.

Other wells have been identified for possible future uses (DOE-RL 1994). Such uses may include operable unit characterization and monitoring, vapor extraction, and soil treatment processes and groundwater pump and treat projects. Using existing wells saves the cost of drilling new wells. However, to achieve desired data quality objectives, existing wells may require remediation before they are placed in service. Remediation also is often necessary to meet regulatory requirements for surface and annular seals, surface protection, water quality, and for modifying monitoring intervals.

Certain wells may require decommissioning or remediation to protect groundwater resources or public safety. Other wells may require removal from service if they are no longer needed for current or future programs.

The *Hanford Well Remediation and Decommissioning Plan* (Ledgerwood 1993a) describes the process of identifying wells requiring action, and contains the requirements for conducting remediation/decommissioning activities. That plan directs preparation of an annual summary report of completed activities. This report is prepared by WHC Well Services group and provides a summary of well remediation and decommissioning activities performed by all Hanford site contractors. Internal procedures identified within this report are specific to those activities conducted by WHC. Each site contractor has established their own set of governing procedures, which are not referenced in this report.

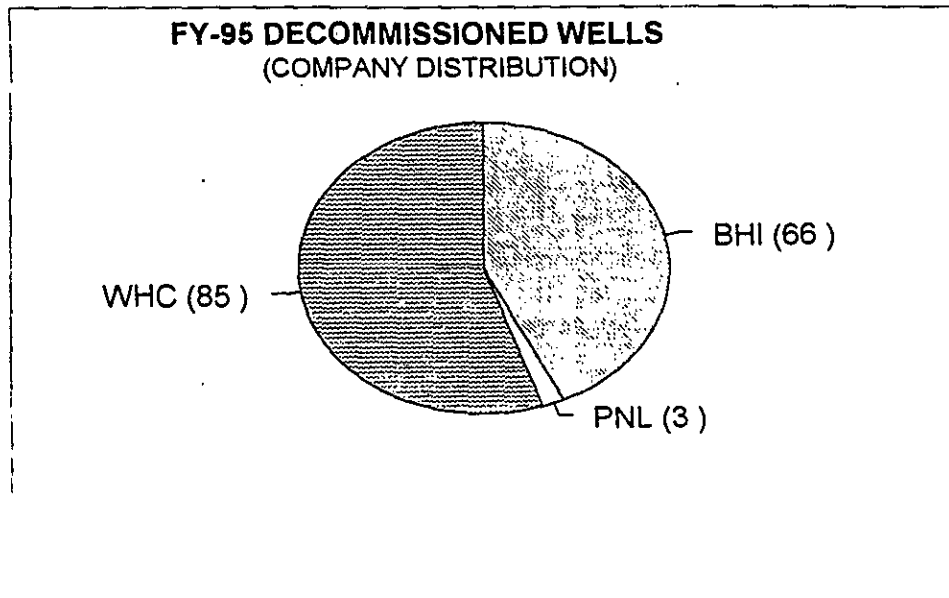


Chart 1--Well Decommissioning By Hanford Site Contractors

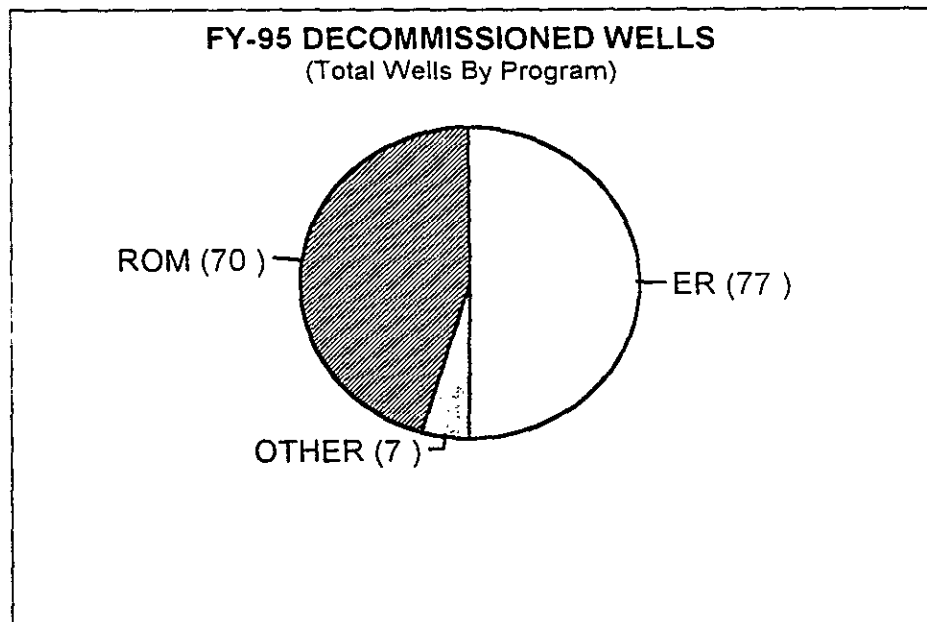
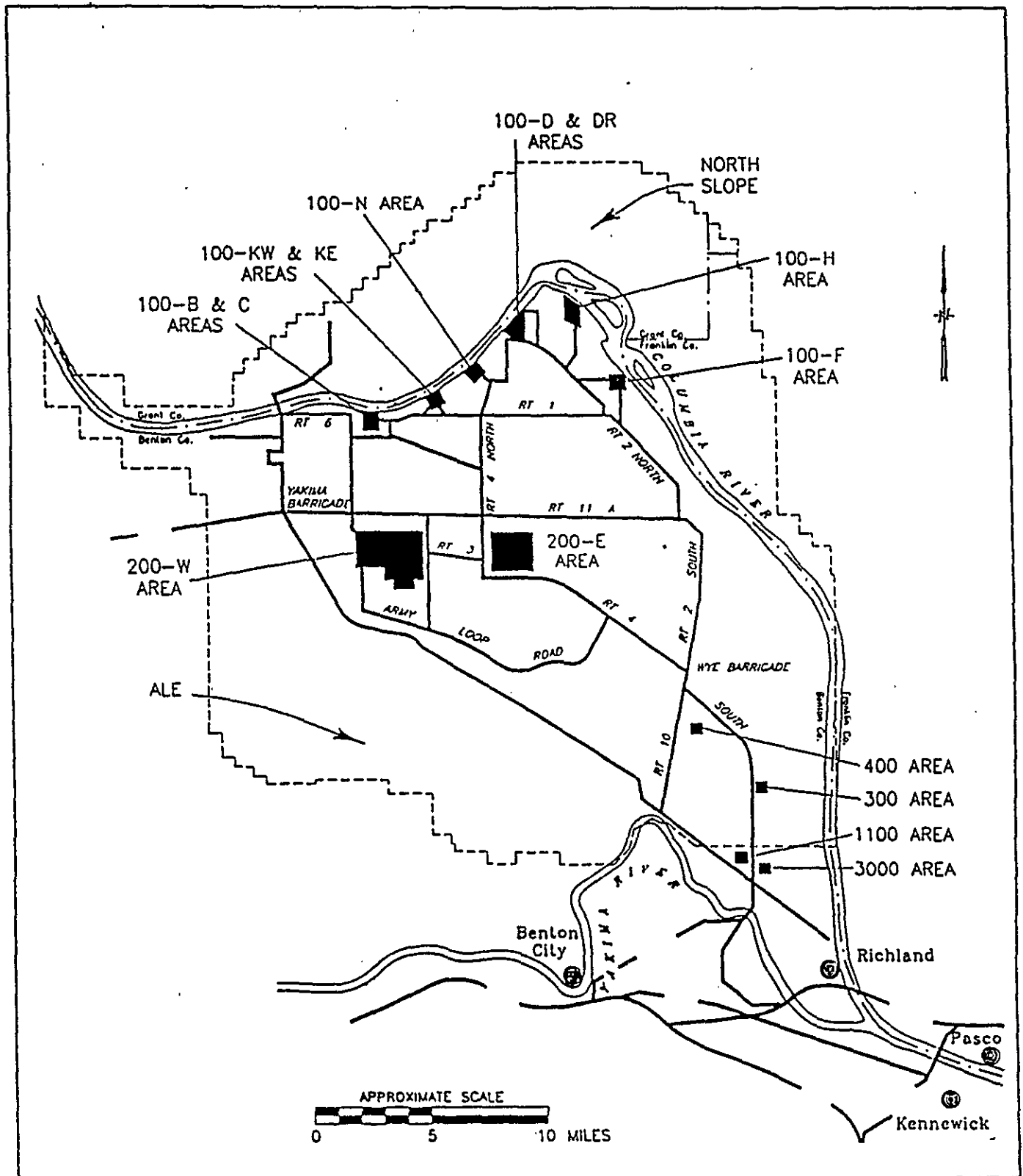


Chart 2--Well Decommissioning Program Distribution

Figure 1. Hanford Site Map.



2.0 CONDUCT OF OPERATIONS

2.1 REGULATORY REQUIREMENTS

The *Revised Code of Washington* ([RCW] 18.104), as amended, states that the drilling, making, or constructing of wells within the state is a business and activity of vital interest to the public, and requires well owners to repair or decommission any well that (1) is abandoned, unusable, or not intended for future use; or (2) is an environmental or public health hazard. The RCW further states that to protect the public health, welfare, and safety, it is necessary that provisions be made for the regulation and licensing of well contractors and operators and for the regulation of well design and construction.

RCW 18.104 empowers the Washington State Department of Ecology (Ecology) to adopt rules regulating those activities. These rules and regulations are contained in *Washington Administrative Code* (WAC) 173-160, "Minimum Standards for Construction and Maintenance of Wells," and WAC 173-162, "Regulations and Licensing of Well Contractors and Operators," issued by Ecology.

WAC 173-160-050 requires that every well contractor submit a complete record on the construction, alteration, or abandonment of the well to Ecology within 30 days after completion (or alteration) of that well. WAC 173-060-055 and RCW 18.104.048 require that a well construction notification (start card) be submitted to Ecology by the land owner for all wells before beginning modification or decommissioning. WHC ensures that start cards for the Hanford Site activities are submitted to Ecology. Each contractor is responsible for submitting required completion records for those activities they conduct or subcontract.

WAC 173-162-040 requires well remediation or decommissioning to be performed by, or under the supervision of, a licensed well driller. Each Hanford site contractor ensures that supervising field personnel or operators performing remediation or decommissioning activities are Washington State licensed well drillers.

A process of requesting variances to code requirements has been established with Ecology. During fiscal year (FY) 1993, two letters clarifying interpretations of certain WAC 173-160 sections were received. In addition, one variance was granted to allow installation of sand plugs in lieu of backfill across the confined and unconfined aquifers during well abandonment/decommissioning and remediation activities. Use of sand plugs instead of cement or bentonite fill reduces the potential effect on water quality samples taken from nearby wells. Additional variances are requested as required to complete workscope in compliance with regulatory requirements.

The provisions of the Dangerous Waste section of the *Resource Conservation and Recovery Act of 1976 Permit for the Treatment, Storage, and Disposal of Dangerous Waste at the Hanford Site* (Ecology 1994) are controlled by the "State of Washington Hazardous Waste Management Act of 1976," RCW 70.105. Part II.F.2.a of Ecology (1994) requires a 5-year schedule for integrity inspections for all resource protection wells on the Hanford Site. Part

II.F.2.b of Ecology (1994) requires that all resource protection wells to which the permit applies be evaluated for potential use and that all unusable wells be abandoned or remediated according to applicable RCW and WAC requirements.

Additionally, the Second Responsiveness Summary section from Ecology (1994) regarding interpretation of the permit (Parts II.F.2.a and II.F.2.b, p. 102) notes that it is Ecology's intention that all applicable WAC 173-160 standards be enforced for all wells on the Hanford Site.

2.2 TECHNICAL REQUIREMENTS

A generic engineering specification containing technical requirements for remediation of groundwater wells was prepared by WHC to allow more flexibility in field operations. The specification, in Construction Specifications Institute format, was issued in FY 1992 and revised in FY 1993.

General technical requirements for borehole abandonment or decommissioning are contained in WAC 173-160-415, "Abandonment of Wells." General:

- (1) *Any well which is unusable, or whose use has been permanently discontinued, or which is in such disrepair that its continued use is impractical or is an environmental, safety or public health hazard shall be abandoned. The abandonment procedure (as prescribed by these regulations) must be recorded and reported as required by the department.*
- (2) *Wells that were not constructed in accordance with these regulations, or wells which are abandoned to allow the placement of potential sources of contamination within one hundred feet of the well, shall be abandoned in one of two ways:*
 - (a) *The casing shall be perforated from the bottom to within five feet of the land surface and pressure grouted. Perforations shall be at least four equidistant cuts per row, and one row per foot. Each cut shall be at least one and one-half inches long.*
 - (b) *Withdraw the casing and fill the bore hole with grout, puddled clay, or bentonite as the casing is being withdrawn.*
- (3) *Piping of sealing materials directly to the point of application or placement by means of a dump bailer or tremie tube is recommended. If cement grout, neat cement, or puddled clay is used as a sealing material below the static-water level in the well, it should be placed from the bottom up by methods that avoid segregation or dilution of the material. When used to place grout, the discharge end of the tremie tube shall be submerged in the grout to avoid breaking the seal while filling the annular space.*

- (4) *If it can be verified that a water supply well was constructed in accordance with these regulations, and it is not being abandoned to allow siting of potential sources of contamination within one hundred feet of the well, it shall be abandoned in accordance with WAC 173-160-420 through 173-160-465, whichever applies.*

Additional specific requirements for borehole abandonment are contained in WAC 173-160-420, -425, -435, -445, -455, -465, and -560.

2.3 WHC GOVERNING PROCEDURES

WHC conducts well characterization, fitness-for-use assessments, remediation/decommissioning field operations, and activity documentation according to Environmental Investigations Instructions (EII) contained in the *Environmental Investigations and Site Characterization Manual* (WHC-CM-7-7).

Characterization of existing conditions including well site visits, photographs, depth measurements, television surveys, and wellbore cleaning are performed in accordance with EII 6.4, "Resource Protection Well Services (WHC-CM-7-7).

Fitness-for-intended use assessment of identified wells is performed in accordance with EII 6.6, "Resource Protection Well Characterization and Evaluation" (WHC-CM-7-7). This EII also provides the mechanism for obtaining review and approval of proposed remediation or decommissioning methods. The review and approval process involves all potential users and involved programs. Revision 2 of EII 6.6 was completed and issued in FY 1994.

Decommissioning procedures are contained in EII 6.10, "Abandoning/ Decommissioning Groundwater Wells" (WHC-CM-7-7). The EII implements the technical and regulatory requirements of WAC 173-160 for borehole decommissioning.

Remediation field activities are controlled by EII 8.3, "Remediation of Groundwater Wells" (WHC-CM-7-7). Field activities include over drilling casing and installing of surface seals, casing perforating and installing liners to provide annular seals, and other modifications of a well structure to achieve specific data quality objectives.

2.4 EFFLUENT MONITORING AND WASTE MANAGEMENT

Specifications and applicable EIIs address the effluent monitoring and waste management requirements of *Environmental Compliance* (WHC-CM-7-5), and provide for control and disposition of fluids and waste produced during maintenance, remediation, or decommissioning of wells.

2.5 HEALTH AND SAFETY

Specifications and instructions for all well maintenance, remediation, and decommissioning activities contain applicable health and safety requirements. These requirements may include special training, field safety, radiological safety, and hazardous waste safety. Excavation and/or hazardous work permits are obtained as needed using existing procedures and forms.

2.6 PLANNING AND BUDGETING

Work performed by WHC is controlled under the WHC Management Control System as defined in the *Management Control System* (WHC-CM-2-5).

2.7 ACTIVITY DOCUMENTATION

Well remediation and decommissioning field activities are documented as required by applicable procedures. Documentation consists of daily field activity reports in addition to WAC 173-160 required reports. Reports are transmitted to the appropriate records center with copies also maintained in the Well Services Group field file and Hanford Wells Database System.

2.8 QUALITY ASSURANCE

Quality assurance surveillance activities are conducted by the respective contractors for the workscope they perform. A Well Services Quality Assurance Project Plan was developed and issued this year. It is contained in the Westinghouse Environmental Procedures Manual (WHC-CM-7-8).

2.9 ANNUAL REPORT

An annual report summarizing remediation and decommissioning activities is prepared and issued for clearance within 90 days after the end of each fiscal year. This report is the third of that series.

3.0 HANFORD WELL DATABASE AND WELL CUSTODIANSHIP

In FY 1994, a Well Administration Team was established under the auspices of the *Hanford Site Groundwater Management Program* (DOE-RL 1994). This team is comprised of representatives from all Hanford Site contractors with organizations/programs using wells. The purpose of the team is to provide a forum for establishing cooperation and coordination between all well use programs. The first order of business for the team was the establishment of a well custodian database to identify responsible parties (custodians) for the use, maintenance, remediation, and decommissioning of wells on the Hanford Site. The Hanford Well Custodian information is a part of the Hanford Wells Database System (HWDS) and is accessible through the Hanford Local Area Network. Wells in use by more than one program were assigned custodianship based on a specific priority. Wells not "in-use" or "claimed" were classed as "orphan" wells and assigned to the ROM program. These "orphan" wells are candidates for decommissioning activities. Table 1 provides a listing of well custodians and total wells assigned to each. The current status of Hanford Site wells is also maintained in the Well Custodian Database. Table 2 summarizes the current status for these wells.

Summaries of reviewed remediation, decommissioning, and maintenance field activity reports are entered into the HWDS. The HWDS continues to grow and change as existing wells previously undocumented are added, existing data are corrected, new wells are drilled, and wells are remediated or decommissioned.

Well status characterization data, including results of field inspection reports, digitized site photographs, field activity reports and downhole camera inspections are included in the database system. Also included are water level measurements, survey datums, well service requests, and well maintenance, remediation and decommissioning information.

A database is also maintained for the issuance of start cards, well identification numbers and well names. This provides a mechanism for tracking well construction, remediation and decommissioning activities conducted on the site by the various contractors.

Table 1. Hanford Site Well Custodian Summary

Custodian ID	Total Wells
ACOE	91
BHI	420
CITY WELLS	13
FFTF	1
KEH	7
PNNL	626
US ECOLOGY	5
WHC	2720
WPPSS	139
NOT DETERM.	664
OVERALL TOTAL	4686

Table 2. Hanford Site Well Status Summary

Current Status	Total Wells
ABANDONED	1245
AWAITING DECOMMISSIONING	33
CLAIMED	417
DESTROYED	136
DRILLING IN-PROCESS	7
IN-USE	2417
ORPHAN	395
UNABLE TO LOCATE	3
NOT DETERM.	33
OVERALL TOTAL	4686

4.0 FITNESS-FOR-USE ACTIVITIES

Well fitness-for-use evaluations are conducted to determine the viability of wells and provide recommendations for use, remediation or decommissioning. The following activities were completed in FY 1995 as a part of fitness-for-use characterization and evaluation.

- Preliminary fitness-for-use evaluations were completed for 150 wells in the 600 Area. These evaluations were based on available data and generic data quality objectives.
- Eighty two fitness-for-use evaluations and recommendations were approved.
- Construction documentation and field observations were conducted for 21 wells associated with the 200 West Area Carbon Tetrachloride Vapor Extraction program.
- Field inspections were completed for 516 groundwater and vadose monitoring wells.

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5.0 REMEDIATION AND DECOMMISSIONING ACTIVITIES

5.1 IDENTIFICATION OF WELL REQUIREMENTS

Representatives of well custodians, or joint users, may identify existing wells within, or associated with, areas of their responsibility for potential use or decommissioning. Additionally, federal or state regulators may identify areas to be evaluated or well structures of concern, and request remediation or decommissioning of wells or groups of wells.

Each well proposed for use or decommissioning is evaluated and placed into action categories based on applicable present and future use, degree of environmental impact, location, and construction characteristics. Such criteria include:

- Potential or present use:
 - Groundwater quality analysis
 - Water level measurements
 - Geophysical logging or monitoring
 - Water supply
 - Groundwater or soil remediation
 - Soil characteristics
 - No known use.
- Environmental affect:
 - Potential affect on groundwater resources, particularly the Columbia River, confined aquifers and groundwater not presently contaminated
 - Demonstrated contamination migration or aquifer interconnection
 - Category list.
- Location and construction:
 - Spatial location with respect to permitted facilities or RCRA site requirements
 - Well configuration
 - Well construction materials
 - Available construction and maintenance records.

The action categories include:

- No action required, well is acceptable for defined data quality objective
- Rehabilitation to original condition required to attain data quality objective and fulfill criteria for intended use
- Remediation required to protect groundwater resources or to attain required data quality objective
- Decommissioning required, the well cannot be remediated or has no documented present or future use.

Wells within each action category are assigned priorities and scheduled for remediation or abandonment. Hanford Site well custodians and applicable regulatory groups are required to concur before remedial or decommissioning actions are started.

Several programs have constructed and/or use existing wells to provide characterization and groundwater monitoring data (DOE-RL 1994 and WHC 1993). Appendices A and B tabulate wells remediated and decommissioned on the Hanford site during this reporting period.

5.2 START CARD SUBMITTAL

WHC is responsible for the submittal of start cards for applicable Hanford Site well activities to Ecology in accordance with WAC-173-160-055. In FY 1995, 49 start cards were submitted for notification of planned well construction, remediation and decommissioning for 176 wells. Completion of planned activities is documented for 166 wells. The status on the remaining notifications was not available at the time of this report. Of those notifications statused, 139 wells were decommissioned, 3 are scheduled for decommissioning, 17 well activities were cancelled, 4 well construction activities are in progress, and 3 well constructions were completed.

5.3 OPERATIONAL MONITORING

WHC conducts an operational groundwater monitoring program for reactor and chemical processing operations in the 100, 200, 300, 400, and 1100 Areas.

Two wells were identified in FY 1995 as requiring decommissioning. Preliminary planning has been completed and the wells have been scheduled to be decommissioned in FY 1996.

5.4 RCRA PERMIT CHARACTERIZATION AND MONITORING

The RCRA and Operational Monitoring (ROM) program conducted by WHC currently involves site-specific monitoring and/or well installation at 20 facilities under the U.S.

Environmental Protection Agency interim-status regulations. A comprehensive well decommissioning program was conducted in FY 1995 and was successful in completing the decommissioning of 74 wells.

During a 600 Area safety inspection, nine old farm wells were identified as safety hazards to personnel and the environment. Four of these wells were decommissioned in FY 1995. The remaining five are scheduled for decommissioning in FY 1996.

On an annual basis, a Hanford Facility RCRA Permit High River Inspection is conducted along the Columbia River. The FY 1995 inspection identified several unmarked wells. Field inspections of these wells were completed. These wells were determined to be "orphan" and have been scheduled for decommissioning in FY 1996.

Through the process of conducting field investigations to locate and inspect wells identified for decommissioning, wells are occasionally unable to be located. This may be due to inaccurate survey data or a lack of documentation of previous well abandonment or decommissioning. Reasonable efforts are undertaken to locate these wells, and if unsuccessful, Ecology is consulted to formulate continuing strategy for well disposition. Further investigation may be required or a decision is made to determine the well as decommissioned as-is. In FY 1995, one well was determined decommissioned as-is.

In addition to the potential for not locating a well, wells for which no documentation of construction exists are also found. In these instances, records are searched in an effort to identify the well(s). If identified, it is labeled for future reference. If not identified, a well identification number is assigned, it is entered into the HWDS and scheduled for future action. Depending upon location, these wells may be scheduled for immediate decommissioning. In FY 1995, 34 unidentified wells were located, 32 of which were decommissioned.

5.5 CERCLA MONITORING AND SITE CHARACTERIZATION

Environmental restoration activities governed by the *Comprehensive Environmental Response, Compensation, and Liability Act of 1980* (CERCLA) are currently conducted by the Environmental Restoration Contractor (Bechtel Hanford Inc.). The majority of wells decommissioned for ER programs were characterization borings and were decommissioned as a part of the drilling process. Well remediation was conducted to prepare wells to meet specific program requirements.

5.5.1 ALE/NS

In 1994, an intensive well decommissioning program was begun as part of the ALE/NS clean-up action conducted by the U.S. Army Corp of Engineers (ACOE). In FY 1995, three wells were decommissioned to complete this program. Two of these wells have been used as water supply wells for former U.S. Army installations on the North Slope.

5.5.2 Characterization Borings

A total of 56 characterization borings were drilled and decommissioned in FY 1995. These borings were in support of waste characterization activities conducted for 116-B-5 Crib Study, and 116-C-1/100 BC operable unit waste characterization, the 100-N Area Demo and the 100-N Area Sheet Pile installation.

5.5.3 Drilling Technology Testing

Fifteen borings were drilled and decommissioned in support of the testing and development of resonant sonic drilling technology.

5.5.4 200-ZP-1 Operable Unit

A program to remove carbon tetrachloride is being conducted in the 200 West Area within the 200-ZP-1 operable unit. Well remediation was conducted on 21 wells associated with this program. The casing of these wells was perforated using Jet-Shot perforating technology (shaped explosive charges) at designated intervals to enhance vapor extraction from the vadose zone.

5.6 RESEARCH OR SPECIAL PURPOSE WELLS

Many research or special purpose wells have been drilled on the Hanford Site. In FY 1995, 3 wells were drilled and decommissioned by PNNL for a Cryobarrier study conducted in the 600 Area.

In addition, 24 wells installed for the Isolation Barrier Test were decommissioned. These wells were located near the Washington Public Power Supply Reactor #1.

In FY 1995 a B-Pond Interim Stabilization program was conducted. A total of 11 wells were decommissioned as part of the pond stabilization. These wells were used for monitoring the dike between the pond lobes.

5.7 QUALITY ASSURANCE ACTIVITIES

There were three surveillances performed on well decommissioning activities conducted by WHC in FY 1995. The surveillances looked at such things as design control, work practices, notification of regulator, personnel qualification, documentation generated, safety training and determination of geographical location. In all cases the well decommissioning activities were found to be entirely satisfactory. Two observations were made regarding training documentation and the substitution of materials used in decommissioning. Both observations were resolved in the course of the surveillance. No nonconformance reports were generated on this activity.

One benefit resulting from the surveillance activity was a change to the WHC well decommissioning procedure to allow the use of Global Positioning System (GPS) data. In cases where there was no existing survey data, GPS could be used to document the location of decommissioned wells instead of performing more costly conventional land surveys. This system was implemented in FY 1995.

6.0 REFERENCES

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WAC 173-160, "Minimum Standards for Construction and Maintenance of Wells," *Washington Administrative Code*, as amended.

WAC 173-162, "Regulations and Licensing of Well Contractors and Operators," *Washington Administrative Code*, as amended.

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WHC-CM-7-7, Section 6.4, Volume 1, *Environmental Investigations and Site Characterization Manual*, "Resource Protection Well Services," Westinghouse Hanford Company, Richland, Washington.

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APPENDIX A
REMEDIATED WELLS

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REMEDIATED WELLS

Well ID #	Well Name	Current Status	Effective Date	Custodian	Program ID	Remediation Performed By
A4664	1-N-14	IN-USE	5/19/95	BHI	ER	BHI
A7349	2-W15-6	IN-USE	4/7/95	BHI	ER	WHC
A5468	2-W15-8	IN-USE	4/7/95	WHC	ROM	WHC
A5477	2-W15-9	IN-USE	3/22/95	BHI	ER	WHC
A7386	2-W15-86	IN-USE	3/27/95	BHI	ER	WHC
A7394	2-W15-95	IN-USE	3/15/95	BHI	ER	WHC
A7523	2-W18-6	IN-USE	4/9/95	BHI	ER	WHC
A7524	2-W18-7	IN-USE	3/22/95	BHI	ER	WHC
A7528	2-W18-12	IN-USE	3/22/95	BHI	ER	WHC
A7633	2-W18-150	IN-USE	5/25/95	BHI	ER	WHC
A7635	2-W18-152	IN-USE	3/16/95	WHC	ROM	WHC
A7636	2-W18-153	IN-USE	3/17/95	WHC	ROM	WHC
A7640	2-W18-157	IN-USE	3/21/95	WHC	ROM	WHC
A7641	2-W18-158	IN-USE	4/7/95	BHI	ER	WHC
A7642	2-W18-159	IN-USE	4/3/95	BHI	ER	WHC
A7645	2-W18-163	IN-USE	5/25/95	BHI	ER	WHC
A7647	2-W18-165	IN-USE	4/4/95	BHI	ER	WHC
A7648	2-W18-166	IN-USE	4/5/95	BHI	ER	WHC
A7649	2-W18-167	IN-USE	3/24/95	BHI	ER	WHC
A7650	2-W18-168	IN-USE	3/28/95	BHI	ER	WHC
A7651	2-W18-169	IN-USE	3/30/95	BHI	ER	WHC
A7657	2-W18-175	IN-USE	5/30/95	BHI	ER	WHC
A9152	6-S6-E4A	IN-USE	9/23/95	PNL	STWD	BHI

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APPENDIX B
DECOMMISSIONED WELLS

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DECOMMISSIONED WELLS

Well	Well Name	Effective date	Custodian	Program ID
B2515	116-B-5A	6/27/95	BHI	ER
B2516	116-B-5B	6/27/95	BHI	ER
B2517	116-B-5C	6/27/95	BHI	ER
B2518	116-B-5D	6/27/95	BHI	ER
B2519	116-B-5E	6/28/95	BHI	ER
B2520	116-B-5F	6/28/95	BHI	ER
B2521	116-B-5G	6/28/95	BHI	ER
B2522	116-B-5H	6/28/95	BHI	ER
B2523	116-B-5I	6/28/95	BHI	ER
A5539	1-B4-2	6/14/95	BHI	ER
A4556	1-B4-3	6/15/95	BHI	ER
A5743	1-K-25	5/8/95	BHI	ER
A9879	1-N-93A	10/19/94	BHI	ER
A9881	1-N-95A	10/18/94	BHI	ER
A9883	1-N-97A	10/11/94	BHI	ER
A9827	2-W11-33	10/10/94	WHC	OTHER
A9826	2-W11-34	10/31/94	WHC	OTHER
A8581	6-37-82C	3/30/95	WHC	ROM
A8582	6-37-82D	4/6/95	WHC	ROM
A8627	6-40-12A	3/20/95	WHC	ROM
B2430	6-41-61A	10/29/94	PNL	OTHER
B2431	6-41-61B	11/4/94	PNL	OTHER
B2432	6-41-61C	11/8/94	PNL	OTHER
A8684	6-43-41C	4/25/95	WHC	ROM
A8685	6-43-41D	4/25/95	WHC	ROM
A5177	6-43-42	4/26/95	WHC	ROM

DECOMMISSIONED WELLS

Well	Well Name	Effective date	Custodian	Program ID
A8687	6-43-42A	4/24/95	WHC	ROM
A8688	6-43-42B	4/24/95	WHC	ROM
A8689	6-43-42C	4/25/95	WHC	ROM
A8690	6-43-42D	4/26/95	WHC	ROM
A8691	6-43-42E	4/27/95	WHC	ROM
A8692	6-43-42F	4/25/95	WHC	ROM
A8693	6-43-42G	4/24/95	WHC	ROM
A8694	6-43-42H	4/25/95	WHC	ROM
A8782	6-49-12A	5/2/95	WHC	ROM
A8783	6-49-12B	5/1/95	WHC	ROM
A8787	6-49-13D	3/23/95	WHC	ROM
A8805	6-49-111A	3/2/95	WHC	ROM
B2535	6-50-28D	9/19/95	WHC	ROM
A8833	6-52-18A	3/23/95	WHC	ROM
A8835	6-52-18C	3/22/95	WHC	ROM
A8859	6-54-18E	6/21/95	WHC	ROM
A8861	6-54-37B	1/12/95	WHC	ROM
A8880	6-56-26B	3/9/95	WHC	ROM
A8894	6-57-25B	3/9/95	WHC	ROM
A8916	6-59-33	3/7/95	WHC	ROM
A8920	6-59-101	1/25/95	WHC	ROM
A8940	6-62-43B	2/6/95	WHC	ROM
A8955	6-63-25B	2/8/95	WHC	ROM
A8956	6-63-89	1/12/95	WHC	ROM
A8960	6-65-59B	2/2/95	PNL	STWD
A8961	6-65-59C	2/2/95	PNL	STWD

DECOMMISSIONED WELLS

Well	Well Name	Effective date	Custodian	Program ID
A8968	6-70-17	10/14/94	ACOE	ER
A8970	6-70-37	2/9/95	WHC	ROM
A8991	6-80-39B	9/25/95	WHC	ROM
A8996	6-80-62	5/9/95	WHC	ROM
A5340	6-83-36	9/21/95	WHC	ROM
B2475	6-83-36B	9/25/95	WHC	ROM
B2472	6-83-36C	9/21/95	WHC	ROM
B2473	6-83-36D	9/21/95	WHC	ROM
B2474	6-83-36E	9/21/95	WHC	ROM
A9033	6-84-61B	7/26/95	WHC	ROM
A9087	6-93-93	10/15/94	ACOE	ER
A5359	6-96-52	7/14/95	WHC	ROM
A5361	6-97-47	9/28/95	WHC	ROM
A9093	6-97-51B	5/10/95	WHC	ROM
A9096	6-98-54A	10/1/94	ACOE	ER
A9102	6-101-48C	12/13/94	WHC	ROM
A9111	6-112-37	10/14/94	ACOE	ER
B2563	B-4-1	8/8/95	BHI	ER
B2564	B-4-2	8/8/95	BHI	ER
B2565	B-4-3	8/9/95	BHI	ER
B2566	B-4-4	8/10/95	BHI	ER
B2567	B-4-5	8/10/95	BHI	ER
B2568	B-4-6	8/10/95	BHI	ER
B2569	B-4-7	8/10/95	BHI	ER
B2570	B-4-8	8/9/95	BHI	ER
B2571	B-4-9	8/10/95	BHI	ER

DECOMMISSIONED WELLS

Well	Well Name	Effective date	Custodian	Program ID
B2572	B-4-10	8/10/95	BHI	ER
B2483	B2483	6/14/95	BHI	ER
B2484	B2484	6/14/95	BHI	ER
B2485	B2485	6/15/95	BHI	ER
B2486	B2486	6/15/95	BHI	ER
B2487	B2487	7/27/95	BHI	ER
B2488	B2488	7/28/95	BHI	ER
B2489	B2489	7/28/95	BHI	ER
B2490	B2490	7/28/95	BHI	ER
B2491	B2491	7/26/95	BHI	ER
B2492	B2492	7/28/95	BHI	ER
B2503	B2503	7/6/95	BHI	ER
B2504	B2504	7/6/95	BHI	ER
B2505	B2505	7/7/95	BHI	ER
B2506	B2506	7/7/95	BHI	ER
B2507	B2507	7/7/95	BHI	ER
B2508	B2508	7/10/95	BHI	ER
B2509	B2509	7/10/95	BHI	ER
B2510	B2510	7/10/95	BHI	ER
B2511	B2511	7/11/95	BHI	ER
B2512	B2512	7/11/95	BHI	ER
B2513	B2513	7/17/95	BHI	ER
A9971	BH#1	11/7/94	WHC	OTHER
A9972	BH#2	11/10/94	WHC	OTHER
B2573	C-1-1	8/14/95	BHI	ER
B2574	C-1-2	8/14/95	BHI	ER

DECOMMISSIONED WELLS

Well	Well Name	Effective date	Custodian	Program ID
B2575	C-1-3	8/14/95	BHI	ER
B2576	C-1-4	8/14/95	BHI	ER
B2577	C-1-5	8/14/95	BHI	ER
B2578	C-1-6	8/15/95	BHI	ER
B2579	C-1-7	8/15/95	BHI	ER
B2580	C-1-8	8/15/95	BHI	ER
B2581	C-1-9	8/15/95	BHI	ER
B2582	C-1-10	8/17/95	BHI	ER
B2583	C-1-11	8/16/95	BHI	ER
B2584	C-1-12	8/16/95	BHI	ER
B2585	C-1-13	8/16/95	BHI	ER
B2586	C-1-14	8/16/95	BHI	ER
B2587	C-1-15	8/16/95	BHI	ER
B2588	C-1-16	8/16/95	BHI	ER
B2589	C-1-17	8/17/95	BHI	ER
B2590	C-1-18	8/17/95	BHI	ER
B2591	C-1-19	8/17/95	BHI	ER
B2592	C-1-20	8/18/95	BHI	ER
B2593	C-1-21	8/18/95	BHI	ER
B2594	C-1-22	8/17/95	BHI	ER
B2595	C-1-23	8/18/95	BHI	ER
A9983	DTTS-IT1	1/25/95	WHC	OTHER
A9984	DTTS-IT2	1/25/95	WHC	OTHER
A9985	DTTS-IT3	1/26/95	WHC	OTHER
A9986	DTTS-IT4	1/26/95	WHC	OTHER
A9987	DTTS-IT5	1/26/95	WHC	OTHER

DECOMMISSIONED WELLS

Well	Well Name	Effective date	Custodian	Program ID
B2436	IB-92-01	5/16/95	WHC	ROM
B2437	IB-92-02	5/16/95	WHC	ROM
B2438	IB-92-03	5/16/95	WHC	ROM
B2439	IB-92-04	5/15/95	WHC	ROM
B2440	IB-92-05	5/15/95	WHC	ROM
B2441	IB-92-06	5/15/95	WHC	ROM
B2442	IB-92-07	5/15/95	WHC	ROM
B2443	IB-92-08	5/17/95	WHC	ROM
B2444	IB-92-09	5/16/95	WHC	ROM
B2445	IB-92-10	5/17/95	WHC	ROM
B2446	IB-92-11	5/22/95	WHC	ROM
B2447	IB-92-12	5/23/95	WHC	ROM
B2448	IB-92-13	5/24/95	WHC	ROM
B2449	IB-92-14	5/24/95	WHC	ROM
B2450	IB-92-15	5/22/95	WHC	ROM
B2451	IB-92-16	5/17/95	WHC	ROM
B2452	IB-92-17	5/22/95	WHC	ROM
B2453	IB-92-18	5/22/95	WHC	ROM
B2454	IB-92-19	5/23/95	WHC	ROM
B2455	IB-92-20	5/23/95	WHC	ROM
B2456	IB-92-21	5/24/95	WHC	ROM
B2457	IB-92-22	5/22/95	WHC	ROM
B2458	IB-92-23	5/24/95	WHC	ROM
B2459	IB-92-24	5/24/95	WHC	ROM

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